

How to Determine the Toxicity Hazardous Waste Characteristic Without TCLP

To evaluate the regulatory status of a 100% solid sample (no filterable liquid):

1. Analyze for **total** concentration of toxic characteristic hazardous waste.
2. Divide the results by twenty (20) to determine the Maximum Theoretical Leachate Concentrations.
3. Compare the Maximum Theoretical Leachate Concentrations to the regulatory levels of 40 CFR 261.24(a).
4. If no Maximum Theoretical Leachate Concentration equals or exceeds the regulatory levels, then the sample **cannot** exhibit the toxicity characteristic.

The division by twenty in #2 above is known as “**The Rule of 20**“. It is derived from the 20 to 1 ratio of extraction fluid (acetic acid) to the solid sample in TCLP analysis.

In order to save time and money (prices may vary, but totals analysis will always be less expensive than TCLP), when you next send a sample to the lab for analysis to determine the presence of the toxicity characteristic, direct them to perform the following:

1. Analyze by totals analysis first.
2. If results are <20 times the regulatory levels, then stop.
3. If results are >20 times the regulatory levels, then run TCLP to ensure the leachable concentration of toxic constituents is below regulatory levels.

Determination of the toxicity characteristic is just one step of the waste determination process. After you have determined the listed and characteristic hazards of your waste, you must then comply with the regulations applicable to your generator status. [Contact me](#) to learn more about the EPA regulations for management of hazardous waste and the DOT requirements for the transportation of hazardous materials.

Table 1—Maximum Concentration of Contaminants for Toxicity Characteristic (the D List)

EPA Hazardous Waste Code	Contaminant	Regulated Level (mg/l or ppm)
D004	Arsenic (As)	5.0
D005	Barium (Ba)	100.0
D018	Benzene	0.5
D006	Cadmium (Cd)	1.0
D019	Carbon Tetrachloride	0.5
D020	Chlordane	0.03
D021	Chlorobenzene	100.0
D022	Chloroform	6.0
D007	Chromium (Cr)	5.0
D023	o-Cresol	200.0
D024	m-Cresol	200.0
D025	p-Cresol	200.0
D026	Cresol	200.0
D016	2,4-D	10.0
D027	1,4-Dichlorobenzene	7.5
D028	1,2-Dichloroethane	0.5
D029	1,1-Dichloroethylene	0.7
D030	2,4-Dinitrotoluene	0.13
D012	Endrin	0.02
D031	Heptachlor	0.008
D032	Hexachlorobenzene	0.13
D033	Hexachlorobutadiene	0.5
D034	Hexachloroethane	3.0
D008	Lead (Pb)	5.0
D013	Lindane	0.4
D009	Mercury (Hg)	0.2
D014	Methoxychlor	10.0
D035	Methyl ethyl ketone	200.0
D036	Nitrobenzene	2.0
D037	Pentachlorophenol	100.0
D038	Pyridine	5.0
D010	Selenium (Se)	1.0
D011	Silver (Ag)	5.0
D039	Tetrachloroethylene	0.7
D015	Toxaphene	0.5
D040	Trichloroethylene	0.5
D041	2,4, 5-Trichlorophenol	400.0
D042	2,4,6-Trichlorophenol	2.0
D017	2,4,5-TP (Silvex)	1.0
D043	Vinyl Chloride	0.2